AMENDMENTS TO THE CLAIMS

Please amend claims 1, 3, 14, 16, 22, 26, 29, 31, 35, 39, 44, 45, 47, 48, 50, 51, 57, 68 and 70 without prejudice or disclaimer and please add claims 71-91. The following listing of claims will replace all prior listings and versions of the claims in the application.

1. (Currently Amended) A method of determining a predisposition or resistance to infection, the method comprising the steps of obtaining a DNA bearing sample from a subject, and assaying the sample to identify the alleles present at least one of the microsatellite loci D22S929, D22S277, D22S264, D22S423 & D22S418 or D22S272, wherein the presence of particular alleles at microsatellite loci D22S929, D22S277, D22S264, D22S423 & D22S418, ~~or~~ D22S272 or D22S1169 is indicative of a resistance to infection.

2. (Cancelled)

3. (Currently Amended) The method according to claim 1, in which the sample is assayed to determine the presence of homologues, splice variants, or derivatives of the microsatellite loci D22S929, D22S277, D22S264, D22S423 & D22S418, ~~or~~ D22S272 or D22S1169or a nucleic acid complementary thereto.

4. (Previously Presented) The method according to claim 1, in which the infection is viral infection.

5. (Previously Presented) The method according to claim 4, in which the virus is selected from the group consisting of oncoviruses, retroviruses, lentiviruses, and spumaviruses.

6. (Previously Presented) The method according to claim 4, in which the virus is an endogenous retrovirus.

7. (Previously Presented) The method according to claim 3, in which the virus is the HIV virus.

8. (Previously Presented) The method according to claim 1, in which the sample is obtained non-invasively.

9. (Previously Presented) The method according to claim 1, in which the sample is blood, urine, semen, mouth swabs, skin cells, nail clippings, hair, high vaginal swabs or a cervical smear.

10. (Previously Presented) The method according to claim 1, in which the sample is amplified by the use of a nucleic acid amplification technique.

11. (Previously Presented) The method according to claim 10, in which the nucleic acid amplification technique is PCR or rolling circle replication.

12. (Previously Presented) The method according to claim 1, in which the sample is assayed for the presence or absence of particular genotypes at the microsatellite locus or loci using DNA fragment length analysis, DNA hybridisation techniques, DNA sequence identification, single strand length polymorphism (SSLP) analysis, or reference strand conformation (RSC) analysis.

13. (Previously Presented) The method according to claim 12, in which the assay uses single strand length polymorphism (SSLP) analysis and a flanking primer set for PCR amplification of the microsatellite marker is selected from
D22S277 left, TTCTTGTGTGGTAGTCTGGG; (SEQ ID No: 1)
D22S277 right, TACCNACTCCCCAAACTATG; (SEQ ID No: 2)
D22S272 left, GAGTTTTGTTTGCCTGGCAC; (SEQ ID No:3)
D22S272 right, AATGCACGACCCACCTAAAG; (SEQ ID No:4)
D22S276 left, CATTCTGCCAAGCAATTTAT; (SEQ ID No:5)
D22S276 right, GCTGCTCTTTAAGTTTCTTGACC; (SEQ ID No:6)

D22S929 left, GGAGCTGCATGTACTAGCTGG; (SEQ ID No:7)
D22S929 right, GCATTTATGGAGTATCCACAG; (SEQ ID No:8)
D22S1169 left, GCACACACATGCACATAATC; (SEQ ID No: 9) and
D22S1169 right, AACAACTTCCAGCAGACG. (SEQ ID No:10) and
complementary nucleic acids or fragments, polymorphisms, splice variants or homologues thereof.

14. (Currently Amended) A kit for the diagnosis of a predisposition to infection, the kit comprising reagents for determination of genotype at at least one of the microsatellite loci D22S929, D22S277, D22S264, D22S423 & D22S418, ~~or~~ D22S272 or D22S1169 or a nucleic acid complementary thereto, fragments, polymorphisms, splice variants or homologues thereof.

15. (Cancelled)

16. (Currently Amended) A vector bearing a chromosomal fragment that comprises at least one of the microsatellite loci D22S929, D22S277, D22S264, D22S423 & D22S418, ~~or~~ D22S272 or D22S1169 or a nucleic acid complementary thereto, or fragments, polymorphisms, splice variants or homologues thereof.

17. (Previously Presented) A method of treating a subject having a predisposition to infection comprising administering to said subject a gene therapy comprising a vector according to claim 16.

Claims 18-21 (Cancelled)

22. (Currently Amended) An isolated peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivative, functional derivative, homologue or fragment thereof comprising an amino acid sequence encoded by a gene located in a chromosomal segment adjacent to microsatellite loci D22S929, D22S277, D22S264, D22S423 & D22S418, ~~or~~ D22S272 or D22S1169, complementary nucleic acids

or fragments, polymorphisms, splice variants, complementary nucleic acids or homologues of said gene.

Claims 23-25. (Cancelled)

26. (Currently Amended) A pharmaceutical composition comprising the isolated peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivative, functional derivative, homologue or fragment thereof according to claim 22 and a pharmaceutically acceptable carrier.

27. (Cancelled)

28. (Cancelled)

29. (Currently Amended) A contraceptive comprising the isolated peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivative, functional derivative, homologue or fragment thereof according to claim 22.

30. (Cancelled)

31. (Currently Amended) A microbicide comprising the isolated peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivative, functional derivative, homologue or fragment thereof according to claim 22.

Claims 32 – 34 (Cancelled)

35. (Currently Amended) A method for the treatment or prophylaxis of infection comprising administering to a subject in need thereof a therapeutically effective amount of the isolated peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivative, functional derivative, homologue or fragment thereof according to claim 22.

36. (Cancelled)

37. (Cancelled)

38. (Previously Presented) A vaccine comprising at least one naked DNA sequence according to any one of SEQ ID NOS:1 to 10.

39. (Currently Amended) A vaccine comprising at least one DNA sequence comprising ~~a~~ microsatellite loci D22S929, D22S277, D22S264, D22S423 & D22S418, ~~or~~ D22S272 or D22S1169, or fragments, polymorphisms, splice variants, complementary nucleic acids or homologues of said ~~gene~~DNA sequence.

40. (Previously Presented) The vaccine according to claim 39 in which the DNA is naked.

Claims 41-43 (Cancelled)

44. (Currently Amended) A chip or assay plate comprising DNA encoding ~~the~~ microsatellite loci D22S929, D22S277, D22S264, D22S423 & D22S418, ~~or~~ D22S272 or D22S1169, or fragments, polymorphisms, splice variants, complementary nucleic acids or homologues of said DNA.

45. (Currently Amended) A screening assay for identifying a compound that is able to bind to or otherwise recognize DNA encoding ~~the~~ microsatellite loci D22S929, D22S277, D22S264, D22S423 & D22S418, ~~or~~ D22S272 or D22S1169, or fragments, polymorphisms, splice variants, complementary nucleic acids or homologues of said DNA, comprising contacting a test compound with the chip or assay plate according to claim 44 and determining whether the compound binds to or otherwise recognizes said DNA.

46. (Cancelled)

47. (Currently Amended) A chip or assay plate comprising the isolated peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivatives, functional derivatives, homologues or fragments according to claim 22.

48. (Currently Amended) A screening assay for identifying a compound able to bind to or otherwise recogni[s]ze, modify or mimic a peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivatives, functional derivatives, homologues or fragments of ~~the~~a protein encoded by a ~~gene~~nucleic acid sequence located in a chromosomal segment adjacent to ~~the~~ microsatellite loci D22S929, D22S277, D22S264, D22S423 & D22S418, ~~or~~ D22S272 or D22S1169, complementary nucleic acids or fragments, polymorphisms, splice variants or homologues of said gene, comprising contacting a test compound with the chip or assay plate of claim 47 and determining whether the compound binds to or otherwise recognizes, modifies or mimics the peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivatives, functional derivatives, homologues or fragments of the protein encoded by said nucleic acid sequence.

49. (Cancelled)

50. (Currently Amended) A method for producing an immunoglobulin A which provides resistance to infection or possesses antiviral activity comprising contacting a cell with ~~a~~ microsatellite loci D22S929, D22S277, D22S264, D22S423 & D22S418, ~~or~~ D22S272 or D22S1169, complementary nucleic acids or fragments, polymorphisms, splice variants or homologues thereof to thereby produce an immunoglobulin A which provides resistance to infection or possesses antiviral activity.

51. (Currently Amended) The method according to claim 50, further comprising contacting said cell with a peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivatives, functional derivatives, homologues or fragments of ~~the~~a protein encoded by ~~the gene~~a nucleic acid sequence located in the

chromosomal segment adjacent to the microsatellite loci D22S929, D22S277, D22S264, D22S423 & D22S418, ~~or~~ D22S272 or D22S1169, complementary nucleic acids or fragments, polymorphisms, splice variants or homologues of said ~~gene~~nucleic acid sequence.

52. (Previously Presented) An Immunoglobulin A providing resistance to infection or possessing antiviral activity, produced according to claim 50.

53. (Previously Presented) A pharmaceutical composition comprising an immunoglobulin A according to claim 52 and a pharmaceutically acceptable carrier.

54. (Previously Presented) A method for the treatment of infection comprising administering to a subject in need thereof a therapeutically effective amount an immunoglobulin A according to claim 52.

55. (Cancelled)

56. (Cancelled)

57. (Currently Amended) The method according to claim 54 ~~produce~~further comprising producing a mucosal response in said subject undergoing treatment to thereby produce protective immunity in said subject.

58. (Original) A mucosal vaccine comprising an immunoglobulin A according to claim 52.

59. (Previously Presented) A method for producing antigen or pathogen specific immunity in a subject comprising administering to a subject an effective amount of a vaccine according to claim 58.

60. (Cancelled)

61. (Previously Presented) A nucleic acid encoding a locus controlling production of neutralising antibodies to HIV.

62. (Previously Presented) The nucleic acid according to Claim 61, in which the nucleic acid is DNA.

63. (Previously Presented) The nucleic acid according to Claim 61, in which the locus is syntenic with mouse D15Mit71.

64. (Previously Presented) The nucleic acid according to Claim 61, in which the locus is selected from human D22S272, D22S423, D22S284, D22S299.

65. (Previously Presented) The nucleic acid according to Claim 61, in which the locus is D22S272 or D22S423.

66. (Cancelled)

67. (Previously Presented) A method for the treatment or prophylaxis of HIV infection comprising administering to a subject in need thereof a therapeutically effective amount of a medicament produced from the nucleic acid according to claim 61.

68. (Currently Amended) An isolated peptide, polypeptide, or protein encoded by a nucleic acid according to Claim 61.

69. (Cancelled)

70. (Currently Amended) A method for the treatment or prophylaxis of HIV infection comprising administering to a subject in need thereof a therapeutically effective amount of an isolated peptide, polypeptide, or protein according to Claim 68.

71. (New) The method according to claim 1, wherein the infection is HIV and the method comprises sequencing a DNA bearing sample from a subject to identify a nucleic acid sequence present between microsatellite loci D22S929 and D22S1169 and comparing the sequence against sequences obtained from the same location in known exposed seronegative subjects who are indicative of a resistance to infection, thereby determining the predisposition or resistance to HIV infection in the subject.

72. (New) The method according to claim 71, in which the sample is blood, urine, semen, mouth swabs, skin cells, nail clippings, hair, high vaginal swabs or a cervical smear.

73. (New) The method according to claim 71, in which the sample is amplified by PCR or rolling circle replication.

74. (New) The method according to claim 71, in which the sample is assayed for the presence or absence of particular genotypes at the microsatellite locus or loci using DNA fragment length analysis, DNA hybridisation techniques, DNA sequence identification or single strand length polymorphism (SSLP) analysis.

75. (New) The method according to claim 74, in which the assay uses single strand length polymorphism (SSLP) analysis and a flanking primer set for PCR amplification of the microsatellite marker is selected from
D22S277 left, TTCTTGTGTGGTAGTCTGGG; (SEQ ID No: 1)
D22S277 right, TACCNACTCCCCAAACTATG; (SEQ ID No: 2)
D22S272 left, GAGTTTTGTTTGCCTGGCAC; (SEQ ID No:3)
D22S272 right, AATGCACGACCCACCTAAAG; (SEQ ID No:4)
D22S276 left, CATTCTGCCAAGCAATTTAT; (SEQ ID No:5)
D22S276 right, GCTGCTCTTTAAGTTTCTTGACC; (SEQ ID No:6)
D22S929 left, GGAGCTGCATGTACTAGCTGG; (SEQ ID No:7)
D22S929 right, GCATTTATGGAGTATCCACAG; (SEQ ID No:8)
D22S1169 left, GCACACACATGCACATAATC; (SEQ ID No: 9) and
D22S1169 right, AACAACTTCCAGCAGACG. (SEQ ID No:10) and

complementary nucleic acids or fragments, polymorphisms, splice variants or homologues thereof.

76. (New) The kit of claim 14, comprising: reagents for determination of a genotype between microsatellite loci D22S929 and D22S1169 or a nucleic acid complementary thereto, fragments, polymorphisms, splice variants or homologues thereof; and reagents for determining the presence or absence of the nucleic acid sequences known to confer HIV resistance in exposed seronegative individuals.

77. (New) The vector of claim 16, wherein said chromosomal fragment comprises at least one nucleic acid sequence that confer HIV-resistance in exposed seronegative individuals.

78. (New) A method of treating a subject having a predisposition to infection or an infection comprising administering to said subject a gene therapy comprising a vector according to claim 77.

79. (New) The isolated peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivative, functional derivative, homologue or fragment thereof according to claim 22, comprising an amino acid sequence encoded by a nucleic acid located in a chromosomal segment between microsatellite loci D22S929 and D22S1169 of an HIV-exposed seronegative individual or complementary nucleic acids or fragments, polymorphisms, splice variants, complementary nucleic acids or homologues of said nucleic acid.

80. (New) A method for the treatment or prophylaxis of HIV infection comprising administering to a subject in need thereof a therapeutically effective amount of the peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivative, functional derivative, homologue or fragment thereof according to claim 79.

81. (New) A vaccine comprising the isolated peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivative, functional derivative, homologue or fragment thereof according to claim 79.

82. (New) A pharmaceutical composition comprising the isolated peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivative, functional derivative, homologue or fragment thereof according to claim 79 and a pharmaceutically acceptable carrier.

83. (New) The pharmaceutical composition according to claim 82 for mucosal administration in prophylaxis, therapy or mucosal vaccination against HIV.

84. (New) A microbicide comprising the isolated peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivative, functional derivative, homologue or fragment thereof according to claim 79 for use in prophylaxis, therapy or mucosal vaccination against HIV.

85. (New) The vaccine of claim 39, comprising at least one DNA sequence comprising a DNA sequence between the microsatellite loci D22S929 and D22S1169 of an HIV-exposed seronegative individual, or fragments, polymorphisms, splice variants, complementary nucleic acids or homologues of said DNA sequence.

86. (New) The chip or assay plate according to claim 44, comprising DNA encoding a nucleic acid sequence between the microsatellite loci D22S929 and D22S1169, or fragments, polymorphisms, splice variants, complementary nucleic acids or homologues of said DNA.

87. (New) A screening assay for identifying a compound that is able to bind to or otherwise recognize DNA comprising a nucleic acid sequence between microsatellite loci D22S929 and D22S1169 of an HIV-exposed seronegative individual, or fragments, polymorphisms, splice variants, complementary nucleic acids or homologues of said DNA,

said assay comprising contacting a test compound with the chip or assay plate according to claim 86 and determining whether the compound binds to or otherwise recognizes said DNA.

88. (New) A chip or assay plate comprising the isolated peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivatives, functional derivatives, homologues or fragments according to claim 79.

89. (New) A screening assay for identifying a compound able to bind to or otherwise recogni[s]ze, modify or mimic a peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivatives, functional derivatives, homologues or fragments of a protein encoded by a nucleic acid sequence between microsatellite loci D22S929 and D22S1169 of an HIV-exposed seronegative individual said assay comprising contacting a test compound with the chip or assay plate of claim 86 and determining whether the compound binds to or otherwise recognizes, modifies or mimics the peptide, polypeptide, protein or glycosylation, sulphonation, acetylation, or other post-translational derivatives, functional derivatives, homologues or fragments of the protein encoded by said nucleic acid sequence.

90. The screening assay of claim 87, which is a high throughput screening assay.

91. The screening assay of claim 89, which is a high throughput screening assay.